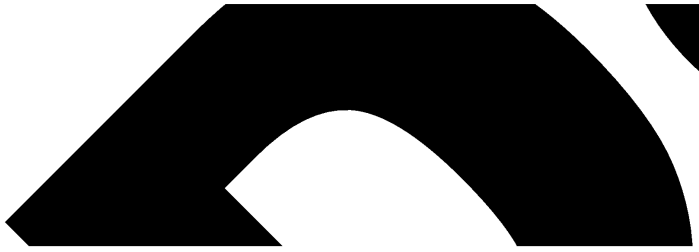

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DIRECTORATE OF
INTELLIGENCE

Intelligence Memorandum

Recent Developments In COCOM And The 1971 COCOM List Review

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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
October 1971

INTELLIGENCE MEMORANDUM

RECENT DEVELOPMENTS IN COCOM AND THE 1971 COCOM LIST REVIEW

Introduction

1. The COCOM organization, an informal international group consisting of the NATO countries (except Iceland and Portugal) and Japan, has been operating since 1949 to control strategic trade with Communist countries. The multilateral controls are embodied in the international embargo lists(1) which all the COCOM countries have accepted as their minimum levels of controls. Since the end of the Korean War, pressures from West European countries anxious to expand exports to Communist countries have led to successive reductions in the general level of COCOM controls, although each succeeding list has added a number of items reflecting new technology in the production of military equipment. Most of the changes in the list have been the product of periodic List Reviews. Items embodying advanced technology which have both strategic and civilian application (the so-called dual-use items listed in International List I) have been the subject of most disagreements within COCOM. In some instances, COCOM members have insisted that the admitted strategic value of an item is outweighed by the commercial gain accruing to their economies from its sale to a Communist country.

2. The last List Review was conducted during 1968-69, and the resultant embargo list was published in December 1969. Since that time

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1. These are International List I, International List IV, the International Munitions List, and the International Atomic Energy List. The Munitions List and the Atomic Energy List contain items directly related to weapons and atomic power. International List IV, the so-called Watch List, contains items not embargoed but reportable for possible future embargo.

Note: This memorandum was prepared by the Office of Economic Research.

the number of requests for exceptions by participating COCOM countries have increased sharply over the average of previous years, and virtually all have been approved. Pressures by most COCOM countries for further relaxing COCOM restrictions have been contained, however, and the List Review beginning in October 1971 essentially maintains the previous frequency of list revision. This memorandum briefly summarizes the results of the 1968-69 List Review and the developments in COCOM since that review and considers the problems to be faced in the 1971 List Review.

Discussion

Background

3. Leading COCOM members had made it quite clear in bilateral talks with the United States and in statements at COCOM meetings prior to 1968 that a comprehensive revision of the COCOM list was necessary. By the time the formal List Review began in October 1968, the major terms of reference agreed upon included (a) more restrictive controls on China than on Eastern Europe and the USSR and (b) a significant reduction of the embargo list for Eastern Europe and the USSR. Although more agreements were reached during the List Review to relax items than to strengthen them, the number of items affected was not meaningful in itself. The United States was able to obtain more complete coverage on a few of the most strategic items for all Communist countries, but the China differential became an effort to limit the number of listed items decontrolled rather than one of adding to the embargo list items which were strategically important for that country. In deference to Japanese sensitivities, a separate China List was not published. Those previously listed items that were henceforth to be exportable to Eastern Europe and the USSR but to be denied to China were identified by an "Easy Access" note. The term "Easy Access" was a code identifying items which all countries had agreed could be exported to Eastern Europe and the USSR without reference to the normal COCOM exceptions procedure,[2] but still required reference to COCOM for export to Communist China. Approximately one-third of the definitions agreed upon for International List I in the 1968-69 List Review contain "Easy Access" notes.

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2. COCOM countries may seek an exception to the rules to enable them to export an embargoed item to a Communist country. In practice, most exceptions requests are granted unless there is clear evidence that the item will be used for military/strategic purposes. Exceptions requests require unanimous approval.

4. High-performance telecommunications equipment has been an area of wide differences between the United States and its COCOM partners over the strategic importance of dual-use items. Other COCOM members consider telecommunications systems overwhelmingly civilian in nature, as opposed to the official US view that acquisition by Communist countries of reliable high-performance Western telecommunications equipment could significantly enhance their military posture. Most Communist countries have sought to purchase some of the most sophisticated Western systems as well as the technology needed to produce them. COCOM participants agreed to a significant reduction in control over communications cable and to the export to Eastern Europe and the USSR under a modified Administrative Exceptions Procedure[3] of telecommunications transmission systems equipped with frequency division multiplex (FDM) apparatus[4] of up to 960 channels, compared with the previous limit of 60 channels. Controls were maintained, however, over the more sophisticated and potentially more strategic pulse code modulation (PCM) and higher capacity FDM equipment.

5. Some new items were inscribed on International List I. Shipment of these items was subject to COCOM control for all Communist countries. The added items included wind tunnels, fiber optics, and production machinery for composite materials, which are used in the production of strong, lightweight, high-temperature-resistant materials in jet engine vanes, aircraft parts, and missile nose cones. More complete coverage of high-strength steels was obtained for all Communist countries. The additional coverage for steel primarily affected Communist China.

6. Two of the more important across-the-board relaxations from previous control lists were made for refractory metals (tantalum and niobium) and for equipment containing integrated circuits. Relaxations were also made for all Communist countries on miscellaneous electronic components and the machinery and raw materials for their manufacture. Minor relaxations were made for most items in the metals and minerals and the chemicals categories for all Communist countries, but the relaxations

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3. An administrative exception permits an item to be exported without reference to the formal COCOM exceptions procedure. Technology controls over the item are maintained. COCOM treats requests to export telecommunications equipment up to 960-channel frequency division multiplex systems as a special type of administrative exception. For telecommunications items, notice of a proposed export must be given 18 days prior to the export instead of following the normal administrative exception procedure of ex post facto *notice. In addition, COCOM countries are given the opportunity to object to proposed exports of the equipment.*
4. Multiplex equipment makes it possible to send two or more channels of information over the same circuit simultaneously.

were more extensive for Eastern Europe and the USSR. In the category "chemicals, metalloids, and petroleum products," approximately one-half of the definitions which emerged from the last List Review contain an "Easy Access" note.

7. The 1968-69 List Review left the International Munitions List basically unaltered, although a number of items were added to and a number removed from the Atomic Energy List. An "Easy Access" note on items such as hafnium, zirconium, and nickel powder provided some relief from export controls on atomic energy materials to Eastern Europe and the USSR. Newly added items to the Atomic Energy List included an across-the-board embargo on plants specifically designed for production of uranium hexafluoride -- used in producing enriched uranium which in turn is used for both reactor fuels and nuclear weapons materials -- and particle accelerators of 500,000 volts or more, which were restricted for China only.

8. A number of important items remained unsettled at the close of the 1968-69 review and thus retain their pre-review status -- for example, numerically controlled machine tools, vacuum furnaces, high-speed grinding heads and precision bearings, raw silicon, transistors, vacuum tubes, and some instruments. Action on these items is still being held up by Japan because the proposals called either for additional controls for China or for relaxations applicable only to the USSR and Eastern Europe. In addition, a COCOM working group concerned with controls on computer technology has been unable to agree on an embargo of computer production equipment.

Developments Since the 1968-69 List Review

9. COCOM received an unprecedented number of exceptions requests following the 1968-69 List Review. Most were approved. Many requests were made to export the technology or "know-how" to produce items still on the embargo list, particularly electronic components and computer-related equipment. COCOM members also began submitting exceptions requests for sophisticated equipment capable of turning out products with important military/strategic applications -- numerically controlled machine tools and diffusion furnaces, for example. Some cases submitted to COCOM sought to export items which could perform a number of military/strategic functions (for example, high-powered computers). The number and value of exception requests since the 1968-69 List Review has dwarfed the totals of previous years.

10. The number of exceptions requests increased 158% between 1966 and 1970, but the value of the requests increased 15 times. The increase in the number of requests for technology to produce controlled items was an important element of the growth in exceptions requests. In 1969 the

value of exceptions requests for technology was $10 million and in 1970 it was $30 million. The following tabulation presents a time series on the number and value of all exceptions requests:

	1966	1967	1968	1969	1970	Jan-Jun 1971
Number of requests	233	298	312	505	602	326
Value (million US $)	6.5	13.5	25.3	39.9	106.1	34.1

In addition to the exception requests, 466 "Easy Access" submissions valued at almost $62 million have been approved since the beginning of 1970.

11. The preponderance of advanced electronic equipment in exceptions requests is the most enduring element of these requests in recent years. The exception requests for electronics can be divided into four subcategories: (a) computer systems and computer peripherals; (b) electronic components and instruments; (c) telecommunications equipment; and (d) electronic technology. Few of the exceptions requests have been denied or withdrawn.

	1968	1969	1970	Jan-Jun 1971
Number of requests for electronics	188	364	445	250
Percent of total requests	60	72	74	77
Value (million US $)	8.5	33.4	75.7	23.9
Percent of total value	34	84	71	70

Requests for Computer Systems, Peripherals, and Components

12. Prior to 1969, all of the computers imported by the USSR and Eastern Europe from the West were small-capacity units, including second-generation machines such as the GE Bull Gamma 40 and small third-generation computers such as IBM 360/30s and even a few 360/40s, smaller models of the ICL 1900 series, and the ICL 4/50, none of which had a processing data rate in excess of 4 million bits per second (mbs).(5)

13. Beginning in 1969, COCOM countries began to submit exceptions requests for the larger computational systems. In July and September 1969 the British submitted requests to export to the USSR two ICL 4/70 computer systems valued at a total of $4 million. These high-capacity machines are suitable for scientific applications and have a processing data rate of 21 mbs. One of the ICL 4/70 computers was intended for Gosplan and the other was for the Institute of Automation and Telemechanics (IAT), now known as the Institute of Control Problems. The United States approved the request for the Gosplan computer but not the other request, because IAT was known to conduct important research for the military in missile guidance. Subsequently, the United States approved the export of the computer after certain safeguards, designed to minimize the risk of diversion of the unit to strategic purposes, were included in the contract.

14. In 1970, the first full year after the List Review, exceptions requests for computer equipment had a total value of $35.4 million,

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5. The processing data rate is a COCOM definition. It is a measure of the capability of a computer to handle internal transfer of data or instructions within a certain time period. The current COCOM cut-off is 8 mbs.

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15. Most of the requests for computer systems since the end of the 1968-69 List Review were for computers which needed formal COCOM approval because of the addition of certain accessories. For example, an IBM 360/40 – valued at $1.7 million – for Romania required COCOM approval because of a large data cell which accompanied the computer. Other accessory equipment which had capabilities above the COCOM cut-off for this type of equipment accounted for the balance of the exceptions requests. In addition to the exceptions requests, more than 80% of the Easy Access submissions were for computer systems and separate peripheral equipment items – $39 million in 1970 and about $11 million in the first six months of 1971 out of a total of $62 million in Easy Access submissions during 1970-71.

Electronic Components and Instruments

16. Exceptions requests in the area of electronic components and instruments have increased sharply. They account for the overwhelming majority of cases in recent years. There were more than 500 exception requests in 1970-71 valued at about $11 million, practically all of which were routinely approved. Large quantities of semiconductors of the most sophisticated types have been approved. Many of these devices, including integrated circuits, silicon and germanium transistors and diodes, and the raw material for their manufacture, are not available except in quite limited quantity and are of uncertain quality in Communist countries. These components are of greatest importance in aerospace applications, but they have a wide range of uses in items requiring reliability, small size, and light weight (all basic characteristics of weapons systems). COCOM also approved oscilloscopes useful in research and development, production, and maintenance of electronic equipment and magnetic recorders having important applications in the field of data handling and storage. In addition, a large variety of scientific instruments was approved.

Requests for Telecommunications Equipment

17. Since the beginning of 1970, there have been 16 exceptions requests for telecommunications equipment valued at $19.6 million (excluding requests for technology). The United States and the other COCOM countries have had serious differences over the military/strategic importance of civil telecommunications networks in Communist nations. The United States has demonstrated that the telecommunications systems

of these nations, which are maintained and operated by the post and telegraph services, are used by the military regularly and that, in times of emergency or war, their use would be of major importance. The United States has, therefore, objected to the export of frequency division multiplex portions of all but one of the exceptions requests for telecommunications equipment submitted in 1970-71. In 1970 the Netherlands government submitted a request to export to Hungary 120-channel telecommunications equipment with the associated multiplex. The United States objected because of the multiplex equipment. The Dutch finally decided to deny the export. In 1971, Italy submitted a request to export 300-channel coaxial cable with the associated multiplex to the USSR for use in operating a natural gas pipeline. The United States reserved and questioned the need for the number of channels for the stated end use. After detailed discussion, the United States decided to approve the request.

Exceptions Requests for Technology

18. Before 1967, COCOM had never approved the export of the technology to produce embargoed items on International List I. In 1967 and 1968 a few exceptions requests were received for the export of technical data for relatively unsophisticated computers and telecommunications equipment. Since the end of 1968, however, most requests have been for more advanced technology,(6) and more than half of these have been for technology to produce multi-application electronic components, for example, silicon transistors and integrated circuits. Since the beginning of 1970 there have been a dozen requests for electronics technology, valued at almost $30 million, including radiotelephones, multiplex equipment, integrated circuits, silicon transistors, quartz crystals, and high-capacity peripheral storage devices for computers. The requests for the technology to produce integrated circuits and multiplex equipment were denied by COCOM after the United States objected. The other requests have been approved, except for quartz crystal technology, which remains pending. The most important cases since the last List Review were submitted in 1969-70 and are discussed below.

19. The French submitted an exceptions request to COCOM in September 1969 to transfer technology and equipment to produce silicon transistors and diodes to Poland. This case brought the first COCOM approval for export of such advanced technology. During the review of the case the French stated that negotiations with Poland were continuing for additional transfers of technology, including integrated circuits, and that exceptions requests would be submitted to COCOM in an unspecified, but

6. There have been only a handful of technology cases outside of the electronics area, and these have been of little importance.

distant, future. Six months later the French submitted a request to export integrated circuit technology. This request was followed by UK and Italian requests to export similar technology to Hungary and Romania, respectively. The United States objected to those portions of the cases involving integrated circuits, but in June 1971 accepted amended requests for the silicon transistor and diode portions of the French and Italian cases.

20. Although the multi-use electronic component technology requests (integrated circuits, capacitors, etc.) were highest in value, there was also a large number of requests for the technology to produce a variety of computer peripherals such as tape transports, line printers, card readers, and various types of auxiliary memory devices. The latter devices sparked the most recent controversy in this area. In July and August 1969 the French and the British submitted competing exceptions requests to transfer the technology for computer disc drives to Hungary. The United States vetoed the proposals, maintaining that the requests contained no provisions to preclude the sale of the disc drives to the USSR. The French resubmitted their request in December 1970 and the United Kingdom followed with its amended proposal shortly thereafter. The United States approved both new requests, which contained provisions against resale of the disc drives. Existing agreements between the USSR and Hungary and between Hungary and the other CEMA countries covering computer development, however, call for Hungary to produce, **inter alia**, a disc storage element for the entire CEMA market.

Requests for Other Equipment and Technology

21. A number of exceptions requests have been received for important items other than electronics equipment and technology. These included Italian requests in 1969 and 1970 to export to the ZIL truck plant in the USSR numerically controlled machining centers which can be used both in strategic applications such as aerospace activities or work related to atomic energy and in nonstrategic applications where high precision is needed. The cases were approved.

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The 1971 List Review – The United States Versus Other COCOM Countries

22. The 1971 List Review may be a replay of the 1968-69 review in which the United States tries to advance a more rigorous prohibition on the export of complex technology that may be used to support both military and civil end items and the other participants seek to eliminate such items except in those instances where Western use is predominantly to support the military. West Germany, France, Belgium, the Netherlands, and the United Kingdom propose the removal of the embargo on such items as germanium transistors, quartz crystals, titanium, tantalum capacitors, tantalum and molybdenum metals, and magnesium alloys. They also propose that controls on computers, oscilloscopes, silicon transistors, and certain telecommunications equipment be relaxed. Japan and other countries have been demanding abandonment of differential treatment of China. Japan has cited recent US moves to relax its unilateral embargo on trade with China as a reason for treating the USSR and China alike.

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23. Recent COCOM approval of several requests to export technical data is sure to be raised during the List Review. Italy has introduced a proposal to remove an item from the embargo list once the technology for its production has been approved for export. The Japanese also insist that once the technology to produce an item is exported there is no justification for continued COCOM embargo of the commodity in question. The Japanese themselves have made no requests for exceptions to export technology, claiming that commodity sales will benefit them more in the long run than technology sales. The United Kingdom has indicated that approval of certain important technical data cases, such as French export of silicon transistor technology, caused serious breaches in the embargo.

24. In addition to the unresolved problem of how to identify and control equipment used in computer manufacturing, the United States has been unable to get COCOM agreement on guidelines for exporting large computer systems. The bilateral US-UK agreements on safeguards necessary to ensure that large computers exported to Communist countries would not be diverted to strategic applications were submitted to COCOM, but the Committee has deferred consideration of the problem. The United States, in a number of bilaterals with leading COCOM members, has proposed guidelines to limit the number of high-capacity computers going to Communist countries. This problem has never been addressed in COCOM, however.

25. Increasingly COCOM countries are threatening to emulate the French example of taking unilateral action on exceptions requests by presenting COCOM with a fait accompli.

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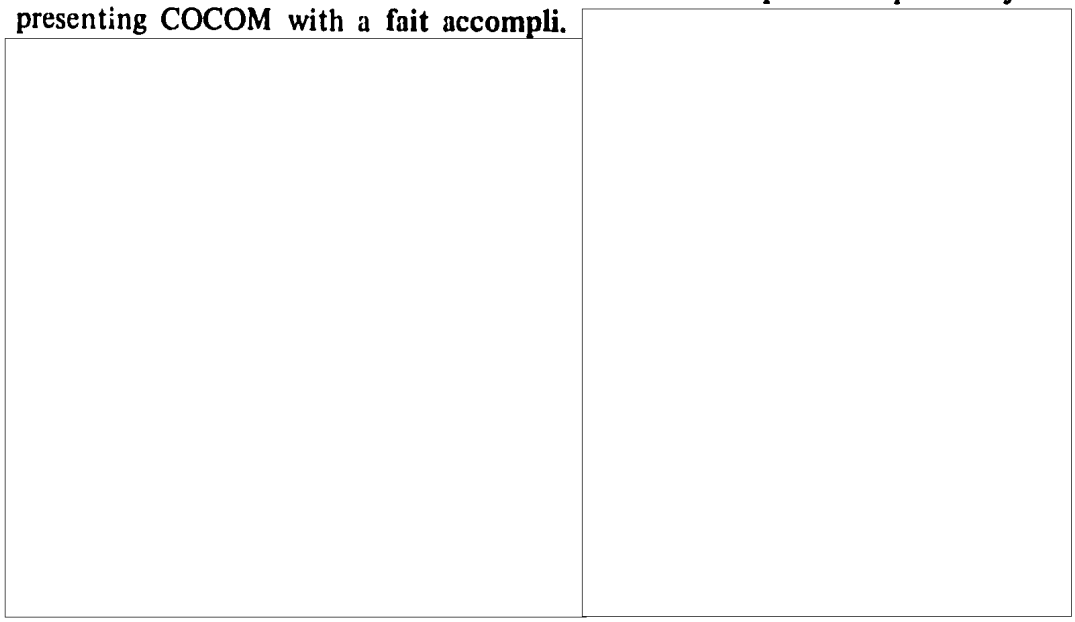

Conclusions

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26. Although the 1968-69 COCOM List Review brought substantial reductions in the number of items subject to export control to the USSR and Eastern Europe, the number and value of requests for exceptions to the remaining export restrictions have increased substantially. In addition, there has been a dramatic qualitative shift in these exception requests; they now cover equipment with capabilities far above COCOM cut-offs – for example, large computers and sophisticated electronics production equipment.

27. Requests to export advanced technology to Communist countries, which were nonexistent before 1967 and rare through 1968, have now become routine. Since the beginning of 1970 alone there were 12 requests worth almost $30 million to export technical data to support production of embargoed electronics, telecommunications, and computer equipment. Relaxation of controls over the export of technology, particularly technology to produce relatively sophisticated items, has an impact far greater than the relaxation of controls over end products, since the export of technology tends to reduce the effectiveness of trade controls by eliminating the major test used to decide whether or not to permit an exception to the embargo. Specifically, it will no longer be possible to determine whether or not the consignee for the product of the technology produces military end items, since once a production line is functioning, its products can go anywhere.

28. The 1971 List Review probably will again find the United States and the other COCOM countries with serious differences over the degree of export control to be maintained in COCOM. For example, the United States may propose strengthening controls over telecommunications equipment, which the United States considers strategic. Other countries, particularly France and Italy, wish to export this equipment and apparently believe that its nonmilitary uses are far more important than the military uses to which it will be put. Furthermore, France informed the United States that it will seek relaxation of the embargo on integrated circuit technology to permit it to complete a large deal with Poland. Other electronics items and electronics production equipment will be the subject of relaxation proposals. Differential China controls will be re-examined, and much of the existing differential may be eliminated. The continuation of controls on a number of end items for which the technical data and, in some cases, the equipment to produce them have been sold will be difficult if not impossible to justify.

29. While the specific outcome of the 1971 List Review can not be predicted, COCOM controls almost certainly will be made less restrictive. Effective controls probably will be maintained over the technology to produce most items having important military/strategic applications as well as the items themselves. There will be a further erosion, however, in control over end items (and the technology for their production) which have a military and nonmilitary end use. Finally, COCOM history has demonstrated that the willingness of the other COCOM countries to cooperate in maintaining whatever level of controls can be agreed to is at least as important as the content of the lists.